

82096  
S/184/60/000/03/06/010

Nickel-Molybdenum and Nickel-Silicon Acidproof Alloys

of all concentration the rate of corrosion is low up to 50°C. In moist chlorine and nitric acid the alloy is not corrosion resisting. Its peculiar property is its resistance in organic acids as well as in alkalis, ammonium chloride, sea and fresh water. In phosphoric acid the rate of corrosion is low either at concentrations up to 10% (at temperatures up to the boiling point) or at any concentrations but at low temperatures. The EI460 alloy is used in mixers, reactors, heat-exchangers, condensers, fittings etc. The EI461 alloy (27-30% Mo-content) is especially suitable for service in HCl of high concentrations at temperatures close to the boiling point. Its corrosion-resistance in HCl can be compared with that of tantalum and some noble metals. The highest corrosion-resistance is achieved at a certain Mo and Fe content in the alloy. According to NIIKhIMMASH in 29% HCl at 70°C and in boiling 21% HCl the rate of corrosion of the cast alloy increases sharply when the Fe-content exceeds 6%. The same is observed in boiling 21% HCl at a Mo-content below 30%. EI461 is corrosion-resistant in sulfuric acid of all concentrations at temperatures up to 50°C. When the temperature increases up to 100°C, satisfactory results can be obtained at concentrations of up to 50% only. In 75% and 98% of H<sub>2</sub>SO<sub>4</sub>, the corrosion resistance deteriorates slightly. The alloy can be used for service in CO, CO<sub>2</sub> and hydrocarbons at temperatures up to 800°C. In other media its corrosion-resistance is about the

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same as that of the EI460, but its wear-resistance is higher and its coefficient of friction lower. These properties make it suitable for use in acidproof pumps and fittings. A chromium-nickel-molybdenum alloy (Hastelloy C) is both an acid-proof and a heatproof material. It is recommended for the use in structures operated under changing temperature conditions or at temperatures up to 980°C. Hastelloy C can be used in H<sub>2</sub>SO<sub>4</sub> of all concentrations at 20°C and in 75% H<sub>2</sub>SO<sub>4</sub> at 100°C; in HCl of all concentrations at temperatures up to 50°C. In HNO<sub>3</sub> this alloy is inferior to less complex and cheaper steels like X18H9T (1Kh18N9T), X18H11B (Kh18N11B), X25T (Kh25T) and other. It is also less suitable than steels X25T (Kh25T), OX23H28M3AT (OKh23N28M3DT), OX23H27M2T (OKh23N27M2T) for H<sub>3</sub>PO<sub>4</sub> solutions. It is stable in moist chlorine (at 20°C) in organic acids, sea and fresh water. The alloy is used in cast parts and also in chemical equipment made of rolled material. The properties of the above-mentioned alloys can be to some extent controlled by heat treatment. By full annealing (heating to 1,150-1,220°C, molding 0.5-3.0 hours, water or air cooling) residual stresses in cast and welded pieces are removed and the machinability is improved. By stabilizing annealing (temperature of heating is about 1000°C lower than for full annealing, molding not less than 2 hours, air cooling) better plastic properties and a somewhat better corrosion-resistance can be achieved. Pieces exposed to an intensive corrosion-erosion wear are annealed at 740-760°C (Ni-Mo alloy)

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or 860-870°C (Cr-Ni-Mo alloy) for 8-168 hours. By this a hardness of 40-50 Rc is achieved but the corrosion characteristics deteriorate due to the formation of intermetallic compounds. On account of their increased strength, all alloys listed above yield with difficulty to deformation. Cold bending, milling and drawing can be done successfully as long as the thickness of the metal is small, otherwise the material must be heated to 1,180-1,040°C, avoiding carbonization and formation of sulfurous compounds. Presently argon-arc welding is used for Ni-Mo and Cr-Ni-Mo alloys, while gas welding is rarely performed. For welding EI460, EI 461 alloys, fillers made of EI461 are used with not less than 30% Mo, up to 0.03% C and up to 0.02% S and P. For welding the Cr-Ni-Mo alloy Cr-Ni-Mo wire is used but with a lower percentage of S and P. Recently it has been found that a considerable intercrystalline corrosion develops predominantly in the parent metal near the seam in EI460 and EI461 castings and welded connections exposed to non-acidifying media. This depends directly on the concentration of the solution, its temperature, motion of the media and aeration. For instance in H<sub>2</sub>SO<sub>4</sub> are the most dangerous the low and medium concentrations while no intercrystalline corrosion is observed in 90% H<sub>2</sub>SO<sub>4</sub>. This corrosion can be eliminated by the following methods: by reducing the percentage of carbon to 0.005% (keeping the concentration of other elements unchanged) or to 0.03% by introducing stabilizers like niobium into the alloy; by increasing the per-

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centage of molybdenum; by a complex alloying with niobium and vanadium reducing at the same time the percentage of Fe and Si to 2-2.2% and 0.4%, respectively; by a heat treatment of welded connections. Nickel-silicon alloys (Hastelloy D, "eyzonit 85") have a high corrosion resistance in sulfuric acid of all concentrations at 180-190°C. These alloys are superior to all other materials in respect to corrosion-resistance in sulfuric acid containing hydrocarbons. In hydrochloric and phosphoric acids within 10-85% concentration at indoor temperature their resistance is high, while the resistance is low near at boiling point. Nickel-silicon alloys are used in cast and cast-welded products only. The chemical composition of the Soviet nickel-silicon alloy is: 11-12% Si, 4-4.5% Cu, up to 0.5% Fe, up to 0.1% C, up to 1.0% Mn, up to 0.1% Al, basic metal Ni. The experiments made by NIIKhIMMASH showed that the strength of an alloy increases with a Si content below 1%, while its ~~corrosion-resistance~~ decreases. The opposite is the case if the Si content is higher than 1%. Mechanical properties of the nickel-silicon alloy are:  $\sigma_b = 25-30 \text{ kg/mm}^2$ ,  $\delta = 0.2\%$ , hardness 48-55 Rc. Because of their hardness and brittleness, nickel-silicon alloys are hardly machinable. To reduce hardness, alloys must be annealed at 1,050-1,065°C during 2-4 hours. The corrosion-resistance does not decrease and hardness decreases by about 10Rc.

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The expensive Ni-Mo, Cr-Ni-Mo and Ni-Si alloys should be used only in case simpler alloys and steels or non-metal materials are not suitable. The great future importance of two-layer materials with coatings of the aforementioned alloys is stressed. There are 2 tables and 22 references: 8 Soviet, 9 English and 5 German.

W

Card 6/6

AKSHENTSEVA, A.P., kand.tekhn.nauk; SHUMRATOVA, G.N., inzh.

Effect of thermal treatment on the phase composition of 1Kh18N9T  
and Kh18N12M3T steels. Trudy NIIKHIMMASH no.34:50-68 '60.  
(MIRA 14:1)

(Steel--Heat treatment)

(Steel--Metallography)

L 36379-66

EWP(k)/EWT(m)/T/EWF(v)/EWP(t)/ETI IJP(c) JD/HM/WB

ACC NR: AR6005807

SOURCE CODE: UR/0137/65/000/010/E012/E012

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B

AUTHOR: Akshentseva, A. P.; Kolosova, L. P.; Shumratova, G. N.

TITLE: Structure and mechanical properties of argon-arc weld joints of technically pure VTl-1/titanium and OT4 alloy

SOURCE: Ref. zh. Metallurgiya, Abs. 10E79

REF SOURCE: Tr. Vses. n.-i. i konstrukt. in-t khim. mashinostr., vyp. 47, 1964,  
50-60

TOPIC TAGS: titanium, argon, arc welding, weld joint/VTl-1 titanium, OT4 alloy

## ABSTRACT:

The effect of heat treating of Ti VTl-1 and OT4 alloys on structural changes, surface oxidation, and corrosion at temperatures ranging from 650—1050°C has been investigated. V. Fomenko. [Translation of abstract.] [NT]

SUB CODE: 11/ SUBM DATE: none

me  
Card 1/1

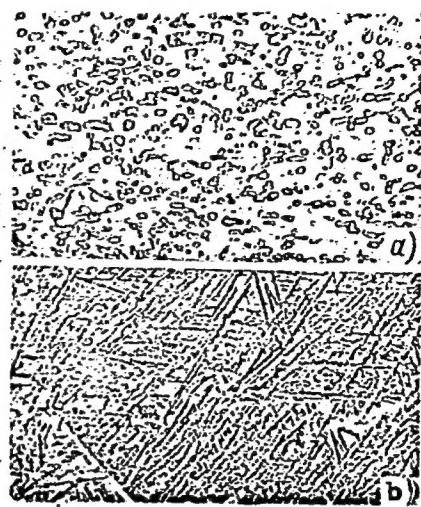
UDC: 621.791.052:669.295

L 04653-57	ENT(m)/T/EWP(t)/ETI	IJP(c)	JD/AB
ACC NR: AP6007116	SOURCE CODE: UR/0129/66/000/002/0051/0055		
AUTHORS: Akshentseva, A. P.; Shumratova, G. N.			
ORG: none			
TITLE: Effect of thermal treatment on the structure and properties of <u>titanium</u> VT1 and alloy OT4			
SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 2, 1966, 51-55			
TOPIC TAGS: titanium alloy, titanium aluminum containing alloy, titanium, alloy, manganese containing alloy / VT1 titanium, OT4 alloy			
ABSTRACT: The effect of thermal treatment on the structure, hardness, microhardness, and corrosion stability of titanium VT1 and of alloy OT4 was studied. The specimens in the form of sheets 15 x 15 x 1.5 - 5 mm were annealed at various temperatures from 650--1050C. The corrosion stability of the annealed specimens was determined in 3% sulfuric acid solution at 80 and 65C, and in 1% hydrochloric acid solution containing 10% sodium sulfide and 3% calcium chloride at 70C. The experimental results are summarized in graphs and tables (see Fig. 1). It was found that when the specimens were heated to temperatures in excess of the allotropic transition 950--1050C, they became covered with a hard white oxide. The depth of oxygen penetration into the metal depends on the temperature and aging time.			
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L 04663-67

ACC NR: AP6007116

Fig. 1. Microstructure of alloy OT4, sheet 2.5 mm thick; a - initial state— x 500;  
b - exposed to 1050C for 10 min,  
quenched in water— x 300.



Orig. art. has: 3 tables and 3 graphs.

SUB CODE: 11/ SUBM DATE: none  
13/

kh

Card 2/2

SOV/120-58-6-6/32

AUTHORS: Gnedich, A. V., Kryukova, L. N., Murav'yeva, V. V.,  
Shumshurov, V. I.

TITLE: The Focussing of Electrons in a Spiral Spectrometer  
(Issledovaniye fokusirovki elektronov v spiral'nom spektrometre)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 6, pp 41-45  
and 1 plate (USSR)

ABSTRACT: The spiral spectrometer has been used to study the spectra of conversion and secondary electrons (Refs. 1 and 2) and also to study  $\mu$ - and  $\pi$ -mesons (Refs. 3 and 4). Theoretical calculations on spiral spectrometers have been carried out at the Moscow State University (Refs. 5 and 6) and also abroad (Refs. 7 to 10). However, at the present time the theory of this type of spectrometer cannot be used to calculate accurately the form and size of the electron beam and the dispersion of this instrument in various regions in the magnetic field. In this connection it is of interest to obtain some experimental data on properties of the spectrometer. A photographic

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### The Focussing of Electrons in a Spiral Spectrometer

method is described in the present paper.. In a spiral spectrometer an axially symmetric transverse non-uniform magnetic field is used. The electron source is placed at the centre of the field while the recording device is at some distance from it, the distance being governed by the radius of the limiting plane trajectory. In the instrument investigated, the magnetic field was produced by cylindrical pole pieces 300 mm in diameter. The gap between the pole pieces was 82 mm. The fall-off of the field at the edges of the pole pieces was used. Fig.1 shows a graph of the dependence of the magnetic field on distance from centre as well as a plot of  $1/r$ . As can be seen, the field falls off more rapidly than  $1/r$  over an appreciable region, which is a necessary condition for a spiral spectrometer. The successive changes in the meridional section of the electron beam were studied when the beam traverses the magnetic field of the spectrometer. To get this beam profile the set-up illustrated diagrammatically in Fig.1 was used. An X-ray film camera, 4, was placed in the path of the beam and along the radius, as shown in Fig.2. An active deposit of Th served as the source of electrons. It was deposited on a copper wire 0.1 mm dia and 14 mm long in a vertical position. Con-

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The Focussing of Electrons in a Spiral Spectrometer

centrically with the source an aluminium screen was mounted. This screen was 30 mm dia and had a  $3 \times 14 \text{ mm}^2$  slit. This slit could be rotated without letting air into the chamber. By rotating the slit, the angle  $\varphi$  between the direction of exit and the X-ray camera could be varied. The results obtained are shown in Figs. 3 and 6. It is concluded that in a spiral  $\beta$ -spectrometer there are 3 regions for the electron beam which can be used for spectrometric measurements. Fig. 9 shows conversion lines obtained with a counter, using a source 0.6 mm wide with a relative solid angle of  $3.4 \times 10^{-3}$  steradian. The relative half-width of the lines was 0.32% (F-line of ThB) and 0.37% ( $\text{Ce}^{144}$ ,  $E = 92 \text{ KeV}$ ).

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The Focussing of Electrons in a Spiral Spectrometer

V. S. Shpinel' is thanked for valuable advice. There are 9 figures, 1 table and 10 references; 4 of the references are Soviet, 5 are English and 1 is Italian.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific Research Institute for Nuclear Physics, Moscow State University)

SUBMITTED: December 30, 1957.

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L 11290-65 EMG(j)/EMT(d)/EMT(1)/EMP(e)/EPA(s)-2/EMT(m)/EPF(c)/EEC(k)-2/EPF(n)-2/  
EEC-4/EPR/EPA(w)-2/EMP(b)/EMA(h) Po-4/Pab-10/Pq-4/Pg-4/Ps-4/Pt-10/Peb/Pu-4/  
ACCESSION NR: AP404325 Pk-4/Pl-4 WH/GG/NH S/0203/63/004/004/0781/0784

AUTHOR: Antonova, I. A.; Pisarenko, N. F.; Savenko, I. A.; Shumshurov,  
V. I.

TITLE: High-sensitivity electrostatic relay 25

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 4, 1964, 781-784

TOPIC TAGS: weak current measurement, ionization chamber measurement,  
electrostatic relay, gold graphite contact, electrostatic relay, sen-  
sitive relay 9M

ABSTRACT: A miniature high-sensitivity electrostatic relay designed  
for recording weak currents (up to  $10^{-15}$  amp) in automatic ionization  
chambers is described. It represents a system of normally open con-  
tacts, one of which is made from a gold-plated quartz fiber and another  
of which acts as a collector. The system is mounted on a high-quality  
amber insulator. The collector is directly connected to the internal  
electrode of an ionization chamber. The spot on the collector surface  
where the contact with the fiber takes place is coated with graphite.  
The distance between the fiber and collector can be adjusted by a

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L 11290-65  
ACCESSION NR: AP4043257

special regulator. Various materials for contacts were tried, but the most long-lived and stable in operation is the gold-graphite contact ( $10^6$  operations). Experiments show that the relay can be utilized for recording direct currents from  $10^{-7}$  to  $10^{-15}$  amp. The lower limit of the measured currents is determined by the quality of the insulating materials. The total current leakage does not exceed  $2 \cdot 10^{-16}$  amp. The electrostatic relay represents a system based on the attractive or repulsive action of an accumulated charge. Direct results of the measurements in the form of standard pulses can be obtained by using a reading (recording) device. The pulse repetition frequency is proportional to the magnitude of measured current. Orig. art. has: 2 figures.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universitet  
(Institute of Atomic Physics, Moscow State University)

SUBMITTED: 20Apr64 ATD PRESS: 3101 ENCL: 00

SUB CODE: EC, EM NO REF Sov: 004 OTHER: 002

Card 2/2

AUTHORS: Gnedich, A. V., Kryukova, L. N., SOV/48-22-7-21/26  
Murav'yeva, V. V., Shpinel', V. S., Shumshurov, V. I.

TITLE: On the Problem of Doppler Broadening of Lines of Conversion Electrons Emitted by Recoil Nuclei (K voprosu o dopplerovskom ushireniyu liniy konversionnykh elektronov, ispuskayemykh yadrami otdachi)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958,  
Vol. 22, Nr 7, pp. 867 - 870 (USSR)

ABSTRACT: When  $\text{Bi}^{212}$  ( $\text{ThC}$ ) decays by an emission of an  $\alpha$ -particle to  $\text{Tl}^{208}$  ( $\text{ThC}'$ ), this  $\text{Tl}$  nucleus exhibits a transition from an excited state with 40 keV to the ground state. The Doppler effect exhibited by these conversion lines is investigated. At first a plane source of infinite extension is investigated. The thickness of the slab exerts a considerable influence on the conversion lines. The shape of the conversion lines was investigated with a helical focusing- $\beta$ -spectrometer. An active thorium deposit served as a source. The theoretical shape of the lines was computed under the assumption, that the mean life  $\tau$  of the level of 40 keV is within the range  $T < \tau < t$ . ( $\tau$  denotes the life of the excited state, and  $T$  the slowing-down period of the

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On the Problem of Doppler Broadening of Lines of  
Conversion Electrons Emitted by Recoil Nuclei

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nuclei in the target). The Doppler effect leads to a broadening of the lines towards high energies. The experimentally obtained B-line well agrees with the theoretical one. This broadening of lines towards high energies was also found with Aa lines ( $L_{II}$  of the same transition,  $E_e = 25$  keV). The authors checked whether this effect could be caused by distortions of line shape due to the apparatus. The observed broadening of the B- and Aa- conversion lines is actually caused by the Doppler effect. As a summary it is stated that the investigation of the line shape of conversion electrons (emitted from moving nuclei) permits to estimate the life  $\tau$  of the corresponding levels of the nucleus. The analysis of the line shape must take into consideration the actual experimental condition and in particular the thickness of the source. The life can also be estimated by determining the reduction of intensity of the lines due to the emission of recoil nuclei from the source, if the thickness of the source is known. The analysis of the line shape of the conversion spectrum of moving nuclei is also necessary in the estimation of the relative intensities of the conversion lines. There are 5

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On the Problem of Doppler Broadening of Lines of  
Conversion Electrons Emitted by Recoil Nuclei

SOV/48-22-7-21/26

figures and 9 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gos. universitet im.M.V.Lomonosova (Moscow State  
University imeni M.V.Lomonosov)

Card 3/3

USATENKO, Yu. I.; SHUMSKAYA, A. I.

Amperometric titration of silver and mercury by a thiourea  
solution. Zav.lab. 26 no.2:149-152 '60. (MIRA 13:5)

I. Dnepropetrovskiy khimikotekhnologicheskiy institut imeni  
F.E. Dzerzhinskogo.  
(Silver--Analysis) (Mercury--Analysis)

SHUMSKAYA, N., kandidat tekhnicheskikh nauk.

Soviet women, master radio work! Radio no.3:1-2 Mr '54.

(MLPA 7:3)

(Radio as a profession)

KUTATELADZE, S.S. Prinimala uchastiye: SHUMSKAYA, L.S., kand.tekhn.  
nauk. KANAYEV, A.A., kand.tekhn.nauk, retsenzent; KATSNEL'SON,  
B.D., kand.tekhn.nauk, red.; DLUGOKANSKAYA, Ye.A., tekhn.red.

[Heat transmission in condensation and boiling] Teploperedacha  
pri kondensatsii i kipenii. Izd.2., dop. i perer. Moskva, Gos.  
nauchno-tekhn.izd-vo mashinostr.lit-ry, 1952. 230 p.

(MIRA 12:9)

(Heat--Transmission) (Condensation) (Ebullition)

SHUMSKAYA, L.S., kand.tekhn.nauk

Comparative evaluation of variations of basic controllable parameters of high-power cylindrical boilers. Energomashinostroenie 4 no.7:26-29 J1 '58. (MIRA 11:10)  
(Boilers)

SOV/96-59-2-6/18

AUTHORS: Chumskaya, L.S., Candidate of Technical Sciences  
Iabutina, R.A., Engineer

TITLE: An Investigation of Pressure Control Systems for a  
Large Drum Type Boiler Operating as a Unit with a  
Turbine (Issledovaniye skhem regulirovaniya davleniya  
dlya moshchnogo barabannogo kotla rabotayushchego v  
bloke s turbinoy)

PERIODICAL: Teploenergetika, 1959, Nr 2, pp 40-44 (USSR)

ABSTRACT: Boilers operating as a unit with a turbine have a single controller to maintain the pressure constant in the pipe leading from the boiler to the turbine. The main control signal must depend on the steam pressure at the turbine but additional signals may also be derived from the other conditions such as the rate of change of pressure at various places in the boiler or rate of change of load on the boiler. The following types of pressure controller, diagrams of which are given in Fig 1, were investigated: a controller with a single signal depending on changes in the superheated steam pressure; a controller with two signals depending on variations in the pressure of superheated steam and on the rate of change; a

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An Investigation of Pressure Control Systems for a Large Drum  
Type Boiler Operating as a Unit with a Turbine

regulator with two signals depending on the rate of change of pressure of superheated steam and steam consumption; and a regulator with three signals depending on variations in the pressure of superheated steam, its rate of change and the steam consumption. In each case, both firm feed back and isodromic feed back for a variable speed servomotor were considered. The variations in operating conditions considered included changes in steam consumption from the turbine side and in fuel consumption from the boiler side. Various equations required in the analysis are then given. An approximate boiler expression is given and it is stated that there is no need to include an equation for the turbine because the inertia of the boiler and its regulator is much greater than that of the turbine and its regulator. Formulae are given for the different regulator circuits with modifications for the different types of feed back. Solutions of the equations were worked out in application to a boiler

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An Investigation of Pressure Control Systems for a Large Drum Type Boiler Operating as a Unit with a Turbine

type TP-70 and curves of changes in steam pressure that resulted from changes in steam consumption, given in Fig 2, show that all the systems operate stably. The worst control conditions are obtained with a single signal controller with firm feed-back and the best from the three signal controller with firm feed-back. Disturbances from the fuel side are then similarly considered and the corresponding pressure variation curves are given in Fig 3. Here it will be seen that signals given according to the change in steam consumption at the superheaters have a bad effect. It follows that in selecting the pressure control system attention should be paid to the most important type of disturbance likely to be experienced by the boiler. When disturbances from the fuel side are the most likely the best pressure control system is that with two signals, one depending on the pressure of the superheated steam and the other on the rate of change of pressure. This is also a good arrangement for dealing with variations from the turbine side. These

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investigations served as a basis for the design of pressure control systems for boilers types TP-70, TP-80, TP-90 and TP-100 operating in each case as a unit with the appropriate turbine. A schematic diagram of the combustion control process for one of these boilers is given in Fig 4. This uses a two-signal pressure controller with signals depending upon the pressure of superheated steam and the rate of change of pressure; it uses a steam-air controller with a signal depending on the rate of change of pressure and a single signal furnace draught controller. The system and its method of operation are briefly described.

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SOV/96-59-2-6/18

An Investigation of Pressure Control Systems for a Large Drum Type Boiler Operating as a Unit with a Turbine

There are 4 figures and 1 Soviet reference.

ASSOCIATION: Tsentral'nyy Kotloturbinnyy Institut (Central Boiler Turbine Institute)

Card 5/5

NEVEL'SON, S.P., kand.tekhn.nauk; PROKOPENKO, A.G., inzh.; MARKIN, V.P. ,  
inzh.; SHUMSKAYA, L.S., kand.tekhn.nauk  
Boiler and turbine unit with a 100-milliwatt power rating operat-  
ings under varying conditions . Elek.sta. no.7:5-15 Jl '60.  
(MIRA 13:8)  
(Steam turbines) (Boilers) (Turbogenerators)

SHUMSKAYA, L.S., kand.tekhn.nauk; MILEYKOVSKIY V.I., inzh.; NALETOV, D.V.,  
inzh.; MININA, G.M., inzh.; RYABOY, E.B., inzh.

Automatic control of the combustion process in the TP-10 boiler.  
Teploenergetika 8 no.11:30-37 N '61. (MIRA 14:10)

1. TSentral'nyy kotloturbinnyy institut i Turbinno-kotel'nyy  
zavod. (Boilers) (Automatic control)

SHUMSKAYA, L.S., kand.tekhn.nauk; RYABOV, E.B., inzh.

Study of the dynamics of the deaeration system of an 800 Mw. block.  
Teploenergetika 12 no.1:10-15 Ja '65.

(MIRA 18:4)

1. TSentral'nyy kotloturbinnyy institut.

CHUPAKOV, L.I., kand. tehn. nauk; TONIN, G.N., inzh.

Study of pressure control in a high-speed reducing and cycling  
unit of an 800 Mw. block with load drops in the turbine. Topic  
energetika 12 no.7:21-26 Jl '65. (MIDA 18:7)

1. TSentral'nyy kotloturbinnyy institut.

L 5179-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) IJP(c) GS/BC

ACCESSION NR: AT5021844

UR/0000/65/000/000/0160/0167

AUTHOR: Korotkov, S. V.; Pivovarov, V. T.; Tarasenko, Ye. V.; Shumskaya, M. K.

48

B+1

TITLE: A study of mixed systems of automatic control by means of digital integrators

SOURCE: AN SSSR. Institut elektromekhaniki. Avtomatizirovanny elektroprivod; sledyashchiye sistemy, upravleniye i preobrazovatel'nyye ustroystva (Automated electric drive; tracking systems, control and converter devices). Moscow, Izd-vo Nauka, 1965, 160-167

TOPIC TAGS: Automatic control system, digital integrator, digital system, automatic control design, servosystem

ABSTRACT: Mixed slave systems are now used for the realization of high Q-factor in automatic control systems. The present authors investigate such a mixed system consisting of a power and a correcting section. The power section controls the rate of change of coordinates whereas the correcting section consists of a coordinate digital slave system. Detailed theoretical and experimental investigations show that 1) the digital integrator can generate the  $\sin \omega t$  and  $\cos \omega t$  functions with widely varying amplitudes and frequencies; 2) mixed systems with double motors have lower demands imposed on their components; 3) under certain circumstances the two parts of the combined systems may be viewed as independent and the total error of the power section may be used as the equivalent control

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L 5222-66

ACC NR: AP5025451

reduce the number of necessary machines and personnel, will extend the life of machines by providing properly constructed interchangeable parts, and will lower the cost of jobs to which it is applied. Orig. art. has: 1 photograph.

SUB CODE: IE/

SUBM DATE: none

OC

Card 2/2

GODLEVSKIY, M.N. ; SHUMSKAYA, N.I.

Chalcopyrite-millerite ores in the Noril'sk-1 deposit. Geol. rud.  
mestorozh. no.6:61-72 N-D '60. (MIRA 14:3)

1. Vsesoyuznyy geologicheskiy nauchno-issledovatel'skiy institut,  
Leningrad.

(Noril'sk region—Chalcopyrite)  
(Noril'sk region—Millerite)

SHUMSKAYA, N. I.

Metamorphism of ores in the Zyryanovsk complex metal deposit in  
the Altai Mountains. Vest. LGU 15 no.18:38-46 '60. (MIRAI3:9)  
(East Kazakhstan Province—Ore deposits)  
(Metamorphism (Geology))

SHUMSKAYA, N. I. (Moskva)

Toxicological characteristics of some epoxy resins. Gig. truda i  
prof. zab. no.12:34-39 '61. (MIRA 14:12)

1. Institut gigiyeny truda i profzabolevaniy AMN SSSR.

(EPOXY RESINS—TOXICOLOGY)

SHUMSKAYA, N.I.

Stages of mineralization and chemical activity in the ore-forming process of the Zyryanovsk complex ore deposit. Vest. LGU 16 no. 6:118-128 '61. (MIRA 14:4)  
(Zyryanovsk region—Minerological chemistry)

SHUMSKAYA, N.I.

Structural characteristics of galenite in the Elbrus and Chochu-Kulak  
deposits. Trudy VSEGEI 60:145-151 '61. (MIRA 15:3)  
(Caucasus, Northern--Galena)

SHUMSKAYA, N.I.

Possibility of chronic intoxication by the dust of diphenylopropane. Toks.nov.prom.khim.veshch. no.4:43-52 '62.  
(MIRA 16:1)  
(DIPHENYLOL PROPANE--TOXICOLOGY)

SHUMSKAYA, N.I.

Industrial hygiene in the production and use of polystyrene.  
Toks.nov.prom.khim.veshch. no.4:52-64 '62. (MIRA 16:1)  
(STYRENE POLYMERS) (PLASTICS INDUSTRY—HYGIENIC ASPECTS)

KARDASHOV, David Alekseyevich; KUDISHINA, Vera Alekseyevna;  
SHUMSKAYA, Nina Ivanovna; CHERNOV, M.M., kand. tekhn.  
nauk, retsenzent; ANTONOVA, S.D., red.

[Epoxy resins and safety measures to be applied in their  
handling] Epoksidnye smoly i tekhnika bezopasnosti pri  
rabote s nimi. Moskva, Mashinostroenie, 1964. 135 p.  
(MIRA 17:11)

SHUMSKAYA, N.I.

Study of the toxicity of polyethylenepolyamine. Toks. nov. prom.  
khim. veshch. no.5:35-44 '63. (MIRA 17:1)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550220004-2

SAN FRANCISCO, CALIFORNIA - May 29, 1954, G-2.

Confidential - Subject of escape and kidnap redaction. (See, now, page  
11, and file no. 106-328 USA.) (NYRA 1854)

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550220004-2"

During April and May, 1968, several students on the "Committee of Safety" received and their friends conducted. These were photo exhibits, exhibition, no. 7, 1968.

SHUMSKAYA, N.N., red.; GASPAR'YANTS, E.M., red.; BASHCHUK, V.I., red.;  
MARKOCH, K.G., tekhn.red.

[Long-distance radio communication on meter waves; collection of  
translated articles] Dal'niaia radiosviaz' na metrovых волнах;  
sbornik perevodnykh statei. Pod red. N.N.Shumskoi i E.M.Gaspar'-  
iants. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1959.  
(MIRA 13:3)

134 p.

(Radio, Shortwave)

FEDORENKO, N.P.; FRIDMAN, L.A.; SHUMSKAYA, N.N.; SHCHUKIN, Ye.P.

Certain problems related to the economics of the phenol production. Khim.prom. no.3:163-166 Mr '61. (MIRA 14:3)  
(Phenols)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550220004-2

SHUMSKAIA N.N.

Nina Nikolaevna Shumskaya. 1904; on her 60th birthday. Elektrosviaz'  
(MIRA 17:12)  
18 no.10:80 0 '64.

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550220004-2"

*Chemical Engg., etc.*

63291

S/19/60/000/01/006/017

B014/B007  
Furkin, Yu. L., Engineer, Nizhnyashvili, R. D., Engineer,  
Shauk, Ye. A., Engineer, Shumskaya, S. M., Engineer

A Universal Apparatus for Infra-red Frequencies (OTRNCH).

Izobratrienyulye, 1960, Nr. 5, pp. 14-16 (DSCH)

**ABSTRACT:** In the present paper the methods of carrying out a general investigation of automatic control systems within the region of low frequencies are dealt with and the apparatus mentioned in the title is briefly described. It is found that during the setting-in of a sinusoidal voltage into the automatic control system under investigation, a non-sinusoidal voltage occurs at the output of the latter, and the authors introduce equations (1) for the effective value of the output voltage. The purport of the solution of these equations is dealt with, and the Fourier coefficients and the solutions of equations (1) to (4) are calculated by means of the OPRICH. This idea was suggested by Prof. K. K. of Eastern Germany, who also gave the principle of the aforementioned apparatus. In figure 5 the block wiring diagram for measuring the effective value of the block voltage, the amplitude of the fundamental frequency and the coefficient of nonlinear distortion is shown. Measurements of the phase shift

Carri 1/2

in the harmonic oscillations occur according to equation (5), and the corresponding block diagram is shown in figure 4. Furthermore, the GM rates for low-frequency voltages (Fig. 6) are calculated. One more type of generator is a Samsonov circuit, which is run with electric reverse feedback. The wave voltage is generated by a relay connected to the generator. In this modified choice of the electrical multiplication apparatus (see again in figure 7), this apparatus served the purpose of measuring the nonlinearities. The apparatus described here is capable of achieving effective values of voltage of up to 50 v within the range of 1 v and, as the standartized amplitude of up to 50 v within the frequency range of from 0.01-0.5 cps. Parameters of the coefficient of nonlinear distortion are carried out at frequencies of from 0.01 to 0.05 cps. Phase shift is affected in the frequency range of from 0.01 - 0.5 cps. The authors thank Mr. V. V. Martynov and Yu. I. Yanova for their valuable assistance in carrying out this investigation. These are the main two main points of interest.

Carri 2/2



20526

*16.95cc (1031,1121,1132)*S/115/F1/XA/001/XB1/007  
B128/E201AUTHOR(S): Burkin, Yu. I., Kurkina, N. N., Matsenashvili, P. D., Shumskii, A. N., and Shumskaya, S. T.

TITLE: Study of a generator for very low frequencies

PUBLICATION: Izmeritel'naya tekhnika, no. 1, 1961, 32-35

TEXT: To study automatic control systems, generators are necessary which produce oscillations in the range of 0.01-20 cycles. The authors describe an electromechanical generator for very low oscillation frequencies, the principle of which had been suggested by F. Ruhl (Western Germany). The system shown in Fig. 1 consists of a magnetolectric system with magnetic feedback. The movable system of this device is not in equilibrium with its axis of rotation produces a certain mechanical torque. This torque is kept in equilibrium by a counteracting torque which is produced in the frame, and which is controlled by the pickup. The equilibrium of this system is controlled by a servosystem, and the input voltage of the servosystem is the desired oscillation of very low frequency. The authors studied the possible errors very thoroughly. It was found that nonlinear disturbances do not

Card 1/2

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Study of a ...

S/114/61/000/001/001/007  
S125/P201

exceed 0.5%, and that the error caused by centrifugal forces does not exceed 0.1%. Technical data of the generator: two electrical sine-wave voltages offset in phase by  $90^\circ$ , where the  $90^\circ$  phase shift is observed to within  $\pm 0.2^\circ$ ; frequency range; 0.01 to 1 cycle,  $\pm 0.2\%$ . Maximum output voltage is equal to 100 units as referred to the amplifier input voltage as the unit. Amplitude fluctuation of the output voltage is smaller than  $\pm 0.3\%$ . Nonlinear distortions are smaller than 0.5%. Maximum noise voltage at the output is 0.3 units as referred to the amplifier input voltages as the unit. G. A. Martynov and Yu. I. Yanova took part in the present investigation.

Card 2/2

S/109/60/005/008/020/024  
E140/E355

93120 (1003,1137,1140)

AUTHORS: Kreynina, G. S., Selivanov, L. N. and Shumskaya, T. I.

TITLE: Emission and Conductance of a Condenser-type Cathode

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol. 5,  
No. 8, pp. 1338 - 1341

TEXT: Condenser-type cathodes have been produced and consist of aluminium-oxide films with a minimum film thickness of 600 Å on aluminium bases. The experimental results indicate that the emission is a result of an intense electric field in the film. Two types of volt-ampere characteristics have been observed, monotonic, and curves with maximum. No theoretical explanations are advanced. There are 6 figures, 1 table and 4 Soviet references. X

SUBMITTED: December 21, 1959

Card 1/1

ACCESSION NR: AT3013138

S/3018/63/000/000/0251/0257

AUTHOR: Shumskaya, V. I.

TITLE: Activity of transamination and deamination processes in the brain in hypoxia

SOURCE: Tret'ya Vsesoyuznaya konferentsiya po biokhimii nervnoy sistemy. Sbornik dokladov. Yerevan, 1963, 251-257

TOPIC TAGS: transamination, deamination, brain metabolism, hyperoxia, ammonia, glutaminase II activity, asparaginase II activity, glutamine, oxalacetic acid, ketoacid, pyruvate, alanine, amino acid

ABSTRACT: Activity of glutaminase II (glutamine-alpha-ketonic acid transaminase-deaminase and asparaginase II in the brain was studied in vivo and in vitro in white rats under hyperoxic and normal conditions. For in vitro experiments brain homogenates samples were placed into a special high oxygen pressure chamber for 1 hr at 6 atm. Glutamine or asparagine, pyruvate or ketoacid (oxalacetic acid), and buffer were added to the samples after removal from the chamber. For in vivo experiments animals were studied in the chamber under the

Card 1/3

ACCESSION NR: AT3013138

following conditions: at 3.5 atm for 1.5 hr (drowsy state), at 6 atm for short periods (convulsive state), and long periods (terminal state). Animals were immediately decapitated after removal from the chamber and brain homogenates were prepared. Glutamine, ketoacid (oxalacetic acid) and buffer were added to some of the brain homogenate samples, and glutamine and buffer only were added to others. All samples were incubated at 37°C for 1 hr. Glutaminase II and asparaginase II enzyme activity was determined by deamination intensity measured by the difference in ammonia accumulation in samples with added ketoacid and those without. Ammonia was determined by Selingson's method and intensity of colored solutions was measured by an SF-4 spectrophotometer. Enzyme activity was also determined by transamination intensity by measuring the difference in acid accumulation in samples with added oxalacetic acid and those without. Aminoacids were determined by electrophoresis. It was found that under normal conditions activity of asparaginase II activated by pyruvate is relatively low and activity of glutaminase II activated by pyruvate is at least two times higher. In brain homogenates asparaginase II activity activated by pyruvate increases by 160.8% at 6 atm and glutaminase II activity depending on ketoacids

Card 2/3

(USSR Ministry of Education Rostov-na-Donu  
University Department of Rostov-on-Don State University)

SUBMITTED: 00

DATE ACQ: 28Oct63

ENCL: 00

Card 3/ APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550220004-2"  
OTHER: 006

L 60278-65

ACCESSION NR: AP5017212

UR/0020/65/162/006/1415/1417

AUTHOR: Gershenovich, Z. S.; Krichevskaya, A. A.; Shumskaya, V. I.

/ 0

TITLE: Specificity between gamma-aminobutyric acid and brain proteins

B

SOURCE: AN SSSR. Doklady, v. 162, no. 6, 1965, 1415-1417

TOPIC TAGS: amino acid, brain tissue, protein metabolism

ABSTRACT: When gamma-aminobutyric acid (GABA) was incubated with rat brain, ammonia accumulated in the mixture and a proportionate decrease occurred in the amount of amide groups in the proteins. When liver protein was used instead of brain, ammonia did not accumulate nor was there any significant change in the amide groups. The ability of brain proteins to react with biologically active amines, acetylcholine, etc. is of considerable biological significance because it is the method by which structural categories of protein take place and low-molecular highly active compounds are stored and become temporarily inactivated. The authors suggest that the ability of GABA in the presence of brain (but not liver) proteins to displace amide groups shows that GABA is not only a regulator of the glutamate concentration and of the speed of the tricarboxylic acid cycle but also a substance that partici-

Card 1/2

L 60278-65

ACCESSION NR: AP5017212

pates in the creation of a place for information storage and processing in the brain. Orig. art. has: 2 figures.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov-on-Don State University)

SUBMITTED: 17Dec64

ENCL: 00

SUB CODE: LS

NO REF Sov: 001

OTHER: 007

*bob*

Card 2/2

SHUMYAVA, YE. A.

5(2)

PHASE I BOOK EXCERPTION

SOV/BS5

Berezhchikov po elektricheskim kontaktam. Moscow. 1956.

Elektricheskie kontakti: trudy sovetskikh konferentsii (Electrical Contacts: Transactions of the Conference) Moscow, Gosenergoizdat, 1958. 305 p. 4,150 copies printed.

Material board: B.B. Sotnikov (Resp. Ed.), V.F. Usov, R.S. Kuznetsov, I.Ie. Ishlakov, and Z.S. Kirtilova; Ed.: I.N. Belanov; Tech. Ed.: K.P. Voronin.

**SUMMARY:** This collection of articles is intended for engineers and technicians designing, developing and operating electrical systems and is concerned with electric contact materials. It may also be useful in scientific research laboratories and laboratories.

**CONTENTS:** This book comprises reports delivered at the Electric Contacts Conference held in Moscow in November 1956. These papers cover physical processes occurring during connecting or disconnecting, methods of designing and testing electric contacts, production and characteristics of contact materials. During the conference of the Institute of Scientific Research (Institut nauchno-issledovaniy) All USSR (Institute of Automation and Telemechanics, Academy of Sciences (USSR)) participants approved periodic conferences of physicists, metallurgists, chemists and apparatus design specialists to discuss problems of electric contacts, which are the components of electric apparatus primarily influencing the reliability of electric systems, especially in control systems. Their physical, thermal, mechanical and chemical processes have still not been well analyzed. References are given at the end of most of the reports.

**III. PRODUCTION AND CHARACTERISTICS OF CONTACT MATERIALS**

Dobrokhod, I.Ie. (Institute of Automation and Telemechanics, Academy of Sciences, USSR) Characteristics of Some Standard Metal Contact Materials 239

Usov, V.F. and Pervozhezhev, M.D. (Nauchno-Issledovatel'nyi Institute for the Electrotechnical Industry - Scientific-Research Institute for the Electrical Industry) Atmospheric Corrosion in Tungsten Contacts 244

The author analyzes the characteristics and resistance to corrosion and mechanical wear of various alloy components of metals.

Ishlakov, Z.S. Alloys for Electric Contacts with Small Contact Resistance 257

The author specifies the standard Soviet alloys for sliding contacts operating with small currents and contact pressure. She compares these alloys from the point of view of reliability, corrosion susceptibility, contact resistance, mechanical and electrical characteristics, and cost.

Tulchinskii, Ye.E. Application of New Materials for Sliding Contacts in SSP Systems [Gidrolyzatsionnaya System] 279

The author specifies the new Soviet standard sliding contacts, discussing their characteristics and application.

Mitryushin, V.A. Survey of Experimental Research on Contact Materials From Precious Metals 292

This is a brief report on Soviet standard palladium alloys Pd-40, Pd-50, Pd-55, and Pd-60. 293

Korlov, V.Z. State of the Production and Standardization of Contacts and Contact Materials From Precious Metals 295

The author describes briefly the developments obtained in the production of contacts made from alloys of precious metals. Considering the great number of contact and conductor types, the author expresses the opinion that a standardization of types is necessary. He suggests the creation of a special organization for the coordination of scientific research activities on contacts of all kinds and the standardization of metals and alloys used in them.

**Discussion**

In the general discussion participated besides the authors of the above articles, L.S. Pashnik (MGI), R.S. Kuznetsov (KIEIP), Ye.V. Podol'skaya (Kharkov Electrical Engineering Plant), Kharkov Electromechanical Plant, I.Ie. Usov (MGI), I.G. Krasil'shchikov (Moscow Institute of Telecommunications), N.M. Yilmaz (Istanbul - Moscow Institute for Nonferrous Metals and Gold), M.M. Tylikin (DNEV AS SR), I.A. Matrosova (Zavod "Elektrosviazh" Elektrosviazh Plant, L.M. Voronov (Kharkovskaya elektrosviazhnyy zavod - Chelyabinsk Electric Apparatus Plant), V.V. Sotnikov.

## PAGE I RARE EDITIONS

SOV/4164

*Всесоюзное собрание по сплавам редких металлов, 1-е, Москва, 1957*  
*Бердиганов, А.А. и др.; труда... (Rare Metals and Alloys; Transactions of the  
 First All-Union Conference on Rare-Metal Alloys) Moscow, Metallurgizdat, 1957.  
 438 p., 3, 150 copies printed.*

Sponsoring Agencies: Akademija nauk SSSR, Institut metalurgii; USSR  
 Komisija po redkim metalam pri nauchno-tekhnicheskom komiteze,  
 Ed.: I.K. Shapovalov; Ed. of Publishing House: O.M. Knyagin; Tech. Ed.:  
 P.O. Intel'jens.

Purpose: This collection of articles is intended for metallurgical engineers,  
 physicians, and workers in the machine-building and radioengineering industries.  
 It may also be used by students or schools of higher education.

Contents: The collection contains technical papers which were presented and discussed at the First All-Union Conference on Rare-Metal Alloys, held in the Institute of Metalurgy Academy of Sciences USSR in November 1957. Results of investigations of rare-metal alloys, titanium and copper-base alloys with additions of rare metals are presented and discussed along with investigations of rhodium, vanadium, niobium, and their alloys. The effect of rare-earth metals on properties of ammonia alloys and steels is analyzed. The uses of rhodium as a deoxidizer catalyst, electrically insulating material, and material suitable for making plugs for automatically electrical switches are discussed. Also, the effect of the addition of certain elements on the properties of boron-titanium steel is examined and alloys with special physical properties (particularly semiconductive alloys) are discussed. No personalities are mentioned. Soviet and non-Soviet references accompany some of the articles.

## Part II. RARE AND COMPOUND ALLOYS

Borislavskij, I.P., Dzhigilova, and V.I. Mal'kov. Investigations of Alloys of the Titanium-Hibium-Aluminum and Titanium-Volfram-Aluminum Systems	31
Mal'tsev, M.V., G.P. Bakhurov, and Ye.A. Sotnikova. Effect of Rare Metals on the Oxidability of Titanium and of the Titanium-Aluminu-	42
Mal'tsev, M.V., and V.I. Mal'kov. Investigation of Titanium-Aluminu-	52
Borislavskij, I.P., G.S. Al'merov, A.S. Vlasov, V.L. Salomon, and L.Z. Mal'	53
Al'mov. High-Temperature Heat-Conducting Alloys of the Copper-Cobalt-Boron-Alum System	63

## Rare Metals (Cont.)

SOV/4164

PART III. RHENIUM, VANADIUM, SIROZUM, RUBIDIUM AND ALLOYS BASED ON THEM	
Balandin, A.P., I.P. Borislavskij and A.A. Tolochekova. Rhodium as a Depolymerizing Catalyst	72
Dzhigilova, N.A., and Ye.M. Sotnikova. Boron-Alloy Alloys	80
Sokol'skij, S.M., Z.N. Semenovskaja, A.N. Slobodin, and I.I. Larion. Separ-	111
ating With Rhodium	
Ugry, V.V., and M.D. Perel'manov. Electrical Contacts Made of Rhodium	123
Semenovskaja, Ye.A. The Possibility of Using Alloys on Tungsten With Rhodium for Making Contacts for Automobile, Electrical Equipment	133
Barguz, I.K., and Ye.M. Sotnikova. Properties of Vanadium, Niobium, and of Alloys Based on Them	135

L 06171-67 EWP(m)/EWP(j)/EWP(t)/ETI IJP(c) JD/WW/JW/JG/JWD/RM  
ACC NR: AP6029971 (4) SOURCE CODE: UR/0413/66/000/015/0162/0162

INVENTOR: Glebovitskiy, A. I.; Shumskiy, A. I.

ORG: none

TITLE: Igniter composition for detonator caps containing PETN as primer. Class 78,  
No. 184678

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 162

TOPIC TAGS: explosive, primer, PETN, detonator

ABSTRACT: The proposed igniter composition for detonators contains PETN as the primer. In order to increase the priming capacity of the PETN and the safety in handling the detonator, it contains the following components: 45—60% potassium perchlorate, 25—45% lead ferrocyanide, 5—25% aluminum powder, and 1—2% colloxyline or another cementing agent (over 100%). [W. A. 88] [PV]

SUB CODE: 19/ SUBM DATE: 27Jul64/

Card 1/1 *pla* UDC: 662.43

SHUMSKIY, A.M.

USER/ Miscellaneous - Philosophy

Card 1/1 Pub. 124 - 7/30

Authors : Shumskiy, A. M., Cand. of Philolog. Sc.

Title : Gorkiy and science

Periodical : Vest. AN SSSR 25/7, 41 - 52, Jul 1955

Abstract : Announcement is made by the Inst. of World Literature at the Acad. of Sc., USSR on the publication of numerous manuscripts written by the famous Russian novelist, Maxim Gorkiy, which supposedly indicate the great interest of Gorkiy in problems of modern science. Four USSR references (1917-1934).

Institution : .....

Submitted : .....

69291

9(s)

AUTHORS:

Turkina, M. S., Engineer,  
Burkin, Yu. L., Engineer, Matsonashvili, R. D., Engineer,  
Shumskiy, A. N., Engineer, Shumskaya, S. T., Engineer

S/119/60/000/03/006/017  
B014/B007

TITLE:

A Universal Apparatus for Infralow Frequencies (UPINCh)

PERIODICAL:

Izoborostroyeniye, 1960, Nr 3, pp 14-16 (USSR)

ABSTRACT:

In the present paper the methods of carrying out a general investigation of automatic control systems within the region of low frequencies are dealt with, and the apparatus mentioned in the title is briefly described. It is found that during the feeding-in of a sinusoidal voltage into the automatic control system under investigation, a non-sinusoidal voltage exists at the output of the latter, and the authors write down equation (1) for the effective value of the output voltage. The Fourier-expansion of this equation is dealt with, and the Fourier-coefficients and the solutions of equations (1) to (4) are calculated by means of the UPINCh. This idea was suggested by F. Rulke of Eastern Germany, who also gave the principle of the aforementioned apparatus. In figure 3 the block wiring diagram for measuring the effective value of the output voltage, the amplitude of the fundamental frequency and the coefficient of nonlinear distortion is shown. Measurement of the phase shift

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10111 - *Apparatus for Infrared Frequencies*      3/119/60/000/03/006/017  
B014/B007

The harmonic oscillations occurs according to equation 1 and the corresponding block diagram is shown in figure 4. In figure 5, the generator for low-frequency voltages (Fig 6) is shown. This new type of generator is a magnetoelectric device with electric reverse feedback. The square wave voltage is generated by a relay connected to the generator. The electrical scheme of the electric multiplication apparatus is shown in figure 7. This apparatus served the purpose of determining the nonlinearities. The apparatus described here is suitable to measure effective values of voltages of amplitude of the fundamental amplitude of up to 50 v within frequency range of from 0.01-0.5 cps. Measurements of the amount of nonlinear distortion are carried out at frequencies of from 0.01 to 0.05 cps. Phase shift is effected over the frequency range of from 0.01 - 0.5 cps. The authors thank V. V. Kostinov and Yu. I. Yanova for their valuable assistance in carrying out this investigation. There are two Soviet references.

91989

9.2510

S/120/60/000/03/020/055  
E041/E521

AUTHORS: Kurkin, Yu.L., Kurkina, N.S., Matsonashvili, R.D.,  
Shumskiy, A.N. and Shumskaya, S.T.

TITLE: Study of an Electrodynamic Multiplier

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No 3,  
pp 82-84

ABSTRACT: The instrument is shown, with the cover removed, in Fig 2. A simplified circuit diagram is in Fig 1. EM<sub>1</sub> and EM<sub>2</sub> are electromagnets, PC<sub>1</sub> and PC<sub>2</sub> are moving coils, FD<sub>1-4</sub> are photo-electric pick-offs, y<sub>1</sub> and y<sub>2</sub> are d.c. amplifiers. Each moving coil compares the torques proportional to the product of the current in the coil and the air-gap flux density. A feedback circuit using the pick-offs and amplifiers obliges Eq (1) to be observed. Since fixed resistances are connected in series with the coils, the instrument may be used as a voltage multiplier as in Eq (4), or if the inputs U<sub>1</sub> and U<sub>2</sub> in Fig 1 are connected together, Card 1/2 as a square root extractor. The size of the unit is

XX (1)

pa

81989

S/120/60/000/03/020/055  
E041/E521

Study of an Electrodynamic Multiplier

220 x 135 x 180 mm<sup>3</sup>. Although the use of feedback avoids errors due to amplifier drift or temperature instability of the pick-offs, the instrument is still vulnerable to parasitic mechanical torques. The maximum working torque is 4 gm.cm. The error contributions are those of friction ( $10^{-5}$  gm.cm), the flexible connections ( $10^{-6}$  gm.cm), misalignment and out-of-balance. The misalignment effects are due to the inclusion of small ferromagnetic particles in undesirable places. The capacitances  $C_1$  and  $C_4$  shown in Fig 1 are necessary to prevent the system breaking into self-oscillations. The maximum input voltage is 100 V, the accuracy in multiplication is  $1.10^{-3}$  and in division  $2.10^{-3}$ . The frequency response is flat to 0.5 c/s. G. A. Martinov is thanked for his assistance. There are 2 figures and 2 Soviet references.

SUBMITTED: April 4, 1959  
Card 2/2

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S/115/ 61/000/001/004/007  
B128/B201

16.9500 (1031, 1121, 1132)

AUTHORS: Kurkin, Yu. L., Kurkina, N. S., Matsonashvili, R. D., Shumskiy,  
A. N., and Shumskaya, S. T.

TITLE: Study of a generator for very low frequencies

PERIODICAL: Izmeritel'naya tekhnika, no. 1, 1961, 32-35

TEXT: To study automatic control systems, generators are necessary which produce oscillations in the range of 0.01-20 cycles. The authors describe an electromechanical generator for very low oscillation frequencies, the principle of which had been suggested by F. Ruhl (Eastern Germany). The system shown in Fig. 1 consists of a magnetoelectric system with magnetic feedback. The movable system of this device is not in equilibrium with its axis of rotation produces a certain mechanical torque. This torque is kept in equilibrium by a counteracting torque which is produced in the frame, and which is controlled by the pickup. The equilibrium of this system is controlled by a servosystem, and the input voltage of the servosystem is the desired oscillation of very low frequency. The authors studied the possible errors very thoroughly. It was found that nonlinear disturbances do not

Card 1/2

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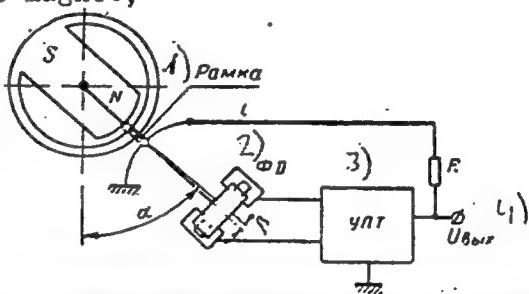
S/115/61/000/001/004/007  
B128/B201

Study of a ...

exceed 0.5%, and that the error caused by centrifugal forces does not exceed 0.1%. Technical data of the generator: two electrical sine-wave voltages offset in phase by  $90^\circ$ , where the  $90^\circ$  phase shift is observed to within  $\pm 0.2\%$ ; frequency range: 0.01 to 1 cycle,  $\pm 0.2\%$ . Maximum output voltage is equal to 100 units as referred to the amplifier input voltage as the unit. Amplitude fluctuation of the output voltage is smaller than  $\pm 0.3\%$ . Nonlinear distortions are smaller than 0.5%. Maximum noise voltage at the output is 0.3 units as referred to the amplifier input voltages as the unit. G. A. Martynov and Yu. I. Yanova took part in the present investigation.

Legend to Fig. 1: S - N is the movable magnet;

1) frame; 2) pickup; 3) d-c amplifier;  
4) output voltage.



Card 2/2

DROZDOV, N.G., professor, doktor tekhnicheskikh nauk; PRIVEZENTSEV, V.A., professor, doktor tekhnicheskikh nauk; KOMAROV, N.S., dotsent, kandidat tekhnicheskikh nauk; NIKULIN, N.V., dotsent, kandidat tekhnicheskikh nauk; SHUMSKIY, I.I., dotsent, kandidat tekhnicheskikh nauk; KREMLEVSKIY, P.A., kandidat tekhnicheskikh nauk; GEPPE, A.P., inzhener; ALEKSANDROV, N.V., professor, doktor tekhnicheskikh nauk; TAREYEV, B.M., professor, doktor tekhnicheskikh nauk; HYGMONSON, L.S., professor, doktor tekhnicheskikh nauk; STEFANOV, V.S., dotsent, kandidat tekhnicheskikh nauk; MAGIDSON, A.O., inzhener.

"Science of electrical materials." M.M.Mikhailov. Reviewed by N.G. Drozdov, and others. Elektrichestvo no.3:93-94 Mr '54. (MLRA 7:4)

1. Moskovskiy energeticheskiy institut im. Molotova. 2. Vsesoyuznyy zaochnyy energeticheskiy institut.  
(Electric insulators and insulation) (Electric conductors)

14(1)

AUTHOR:

Shumskiy, I. I., Candidate of Technical Sciences SOV/67-59-5-5/30

TITLE:

Inflammability of Micropore Hard Rubber in Oxygen Owing to Electrification

PERIODICAL:

Kislorod, 1959, <sup>1/2</sup><sub>1</sub>, Nr 5, pp 19 - 23 (USSR)

ABSTRACT:

In the present paper, the material "Mipor" (micropore hard rubber) is investigated with regard to its inflammability on electrification. "Mipor" is used as thermal isolation in containers for liquid oxygen. The specific resistance of the material depending upon the temperature change in the range of from -180 and + 180°, and on the moisture content of the surrounding medium, was investigated. Further, the dielectric constant and the electric density of charge were determined. It was found that "Mipor" is a dielectric which charges at friction and spraying in airflow. The electrification potential and its sign were determined on the installation of N. G. Drozdov. In the case of electrification, "Mipor" gets a negative charge. The intensity of electrification did practically not depend on the presence of oxygen. The determination of the resistance in volume q took place with a tube potentiometer. The measurement results for positive and negative temper-

Card 1/2

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Inflammability of Micropore Hard Rubber in Oxygen  
Owing to Electrification

SOV/67-59-5-5/30

tures are represented in figures 2 and 3, and the experimental results of  $Q$ -measurements depending upon the moisture content of the surrounding medium are given in figure 4. The following is found by all measurements carried out: "Mipor" has a specific resistance of  $10^{14}$  ohm. cm, its dielectric constant is  $\epsilon = 2.3$ , its density of charge  $E=3.6$  kv/mm.  $Q$  is considerably reduced in a moist medium. The electrifying capability may cause an electric field exceeding 3 kv/mm which surmounts the disruptive strength of air. This density of charge may increase with a large volume to such an extent that the voltage accumulated attains the discharge potential under certain conditions of the electric field. In the case of discharge in the presence of oxygen vapors, this may lead to an inflammation. In industrial plants, inflammation may be avoided by grounding the charge of the container caused by electrification. There are 6 figures, and 1 table.

Card 2/2

SHUMSKIY, I.M.

Maximum molecular moisture capacity as and indicator of the dispersion and water retaining properties of clays. Vop.geol.vost.  
okr.Rus.platf. i IUzh. Urala no.1:139-150 '58. (MIRA 12:4)  
(Bashkiria--Clay)

BUROVSKIY, I. N.: "Maximum molecular moisture capacity as an indicator of the dispersion and hydraulic properties of clay." Min Higher Education US S.R. Novocherkassk Polytechnic Inst imeni S. Ordzhonikidze. Novocherkassk, 1956. (Dissertations for the Degree of Candidate in Technical Sciences).

SO: Knizhnays Letopis' No. 22, 1956

AYVAZOV, B.V., kandidat khimicheskikh nauk; ROZDESTVENSKIY, V.P., kandidat khimicheskikh nauk; SHANIN, L.L., kandidat khimicheskikh nauk; SHUMSKIY, L.N., kandidat tekhnicheskikh nauk; MOSEYeva, Z.V., mladshiy nauchnyy sotrudnik

[Safety instructions and fire prevention measures for members of institutes, departments and workshops] Instruktsiya po tekhnike bezopasnosti i protivopozharnym meropriiatiiam dlia sotrudnikov institutov, otdelov i masterskikh. Ufa, 1957. 70 p. (MLRA 10:8)

1. Akademiya nauk SSSR. Bashkirskiy filial, Ufa.  
(Fire prevention) (Accidents--Prevention)

SHUMSKIY, I.N.

Rapid field method for qualitative evaluation of clays in prospecting.  
Izv. vost. fil. AN SSSR no.11:85-96 '57. (MIRA 11:1)

1. Bashkirskiy filial Akademii nauk SSSR.  
(Clay--Testing)

SHUMSKIY, I.N.

Arkosic sandstones of the southern Urals as raw materials for  
the ceramic industries. Vop. geol. vost. okr. Rus. platf. i IUzh.  
Urala no.2:118-126 '59. (MIRA 12:12)  
(Sandstone) (Ceramic industries)

SHUMSKIY, K., kand.fiz.-mat.nauk

Fundamentals of a method for calculating sublimation condensers.  
Khol. tekhn. 35 no.2:20-26 Mr-Ap '58. (MIRA 11:4)  
(Condensers (Vapors and gases))  
(Sublimation (Physical sciences))

BUTOMA, B.Ye.; SOKOLOV, P.A.; BALAYEV, D.N.; SERGEYEV, N.M.; SHUMSKIY, K.A.; TYAPKIN, M.Ya.; SMIRNOV, V.A.; PIROGOV, N.I.; FEDOROV, N.A.; GOLYASHKIN, G.S.; KUZ'MIN, A.P.; AKULINICHEV, V.P.; brigadir; GORBENKO, Ye.M.; BYSTREVSKIY, L.M., inzh.; STEPANOV, P.S., brigadir; Us, I.S., brigadir-sudosborshchik, deputat Verkhovnogo Soveta SSSR; USTINOV, P.D., slesar'-sborshchik; FINOGENOVA, N.Ya., tokar'; LERNER, M.; ALEKSEYEV, R.Ye.; SIVUKHIN, K., starshiy master; OSTAF'YEV, A.I.; TROFIMOV, B.A., inzh.; KOVRYZHIN, V.F., inzh.; MOISEYEV, A.A., prof.; GOLUBEV, N.V.; MOGILEVICH, V.I.; ANDRYUTIN, V.I.; ANDRIYEVSKIY, M.I.; MATSKEVICH, V.D., dots.

Shipbuilders prepare for the 21st Extraordinary Congress of the CPSU.  
(MIRA 12:3)

1. Predsedatel' Gosudarstvennogo komiteta Soveta Ministrov SSSR po sudostroyeniyu, ministr SSSR (for Butoma).
2. Nachal'nik upravleniya sudostroitel'noy promyshlennosti Lensovnarkhoza (for Sokolov).
3. Direktor Baltiyskogo sudostroitel'nogo zavoda im. S. Ordzhonikidze (for Balayev).
4. Nachal'niki tsekhov Baltiyskogo sudostroitel'nogo zavoda im. S. Ordzhonikidze (for Sergeyev, Shumskiy).
5. Nachal'nik mekhanicheskogo tsekhya Baltiyskogo sudostroitel'nogo zavoda im. S. Ordzhonikidze (for Tyapkin). (Continued on next card)

BUTOMA, B.Ye.---(continued) Card 2.

6. Brigada kommunisticheskogo truda Baltiyskogo sudostroitel'nogo zavoda im. S. Ordzhonikidze (for Smirnov). 7. Glavnnyy inzhener Admiralteyskogo sudostroitel'nogo zavoda, Leningrad (for Pirogov). 8. Glavnnyy inzhener sudostroitel'nogo zavoda im. A.A. Zhdanova (for Fedorov). 9. Nachal'nik elektrodnogo tsekha Sudostroitel'nogo zavoda im. A.A. Zhdanova (for Golyashkin). 10. Nachal'nik tsekha kommunisticheskogo truda sudostroitel'nogo zavoda im. A.A. Zhdanova (for Kuz'min). 11. Malyarnyy tsekhanyy sudostroitel'nogo zavoda im. A.A. Zhdanova (for Akulinichev). 12. Glavnnyy inzhener Nikolayevskogo sudostroitel'nogo zavoda im. I.I. Nosenko (for Gorbenko) 13. Nikolayevskiy sudostroitel'nyy zavod im. I.I. Nosenko (for Bystravskiy, Us, Ustinov, Finogenova). 14. Slesarno-shorochnaya brigada Nikolayevskogo sudostroitel'nogo zavoda im. I.I. Nosenko (for Stepanov). 15. Zamestitel'nachal'nika konstruktorskogo byuro sudostroitel'nogo zavoda "Krasnoye Sormovo" (for Lerner). 16. Glavnnyy konstruktor konstruktorskogo byuro sudostroitel'nogo zavoda "Krasnoye Sormovo" (for Alekseyev). 17. Sudostroitel'nyy zavod "Krasnoye Sormovo" (for Sivukhin). 18. Direktor sudostroitel'nogo zavoda "Leninskaya kuznitsa" (for Ostaf'yev). 19. Sekretar' partkoma TSentral'nogo nauchno-issledovatel'skogo instituta (for Trofimov). (Continued on next card)

BUTOMA, B.Ye.--(continued) Card 3.

20. Predsedatel' Leningradskogo oblastnogo pravleniya Nauchno-tehnicheskogo otdela sudostroitel'noy promyshlennosti (for Moiseyev). 21. Glavnyye inzhenerы Konstruktorskogo byuro (for Golubev, Andryutin).
22. Glavnyy konstruktor Konstruktorskogo byuro (for Mogilevich).
23. Nachal'nik TSentral'nogo tekhniko-konstruktorskogo byuro (for Andriyevskiy). 24. Zamestitel' direktora Leningradskogo korablenstroitel'nogo instituta po uchebnoy chasti (for Matskevich).

(Shipbuilding)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Means of making the section "Exchange of Experience" in the periodical  
"Fel'dsher i Akusherka" more interesting. Fel'd.s.i akush. no.4:57-58  
Ap '54. (MLRA 7:4)

(Medicine--Periodicals)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Yellow clay therapy for sacrolumbar radiculitis. Fel'd. i akush.  
no.9:37 S '54.

(MIRA 7:11)

(NERVES, SPINAL, diseases  
sacrolumbar, ther., yellow)  
(MUD THERAPY  
yellow clay in radiculitis)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Differentiation of boiled from unboiled water. Fel'd. i akush.  
no.1:55 Ja '55. (MLRA 8:3)  
(WATER.  
boiled, differentiation from unboiled water)

SHUMSKIY, K.D., fel'dsher (Kiyev)

~~Preventive vaccination in industry using the conveyer system. Fel'd.~~  
i akush. no.2:45-48 F '55.  
(VACCINES AND VACCINATION,  
of indust. workers)

(MLRA 8:4)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Further data on the therapeutic use of celandine. Fel'd. i akush.  
no.6:54 Je '55. (MLRA 8:8)  
. (CELANDINE)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Sanitary and hygienic importance of planted areas. Fel'd. i akush.  
21 no.2:45-47 F '56. (MLRA 9:5)  
(PLANTS AS SANITARY AGENTS)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Useful book ("Medicinal leeches and their use." G.G.Shchegolev,  
M.S.Fedorova. Reviewed by K.D.Shumskii). Fel'd. i akush. 21  
no.7:62 J1 '56. (MLRA 9:10)  
(LEECHES) (SHCHEGOLEV, G.G.) (FEDOROVA, M.S.)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Treating chronic tonsillitis in a health center. Fel'd. i akush. 21  
no.9:37-38 S '56. (MLRA 9:10)  
(TONSILS--DISEASES)

SHUMSKIY, K.D., feldsher (Kiyev)

Protective cellophane patches. Fel'd. i akush. 21 no.10:44 0 '56.  
(CELLOPHANE) (MLRA 9:12)  
(BANDAGES AND BANDAGING)

SHUMSKIY, K.D., fel'dsher (Kiyev)

The application of Shostakovskii's balsam in the treatment of  
superficial suppurative wounds. Fel'd. i akush. 21 no.4:41 Ap '56.  
(WOUNDS--TREATMENT) (MIRA 9:8)  
(BALSAMS)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Treating epidermophytosis of the foot. Fel'd. i akush. 22 no.1:37-39  
Ja '57 (MILRA 10:4)  
(DERMATOMYCOSIS) (FOOT--DISEASES)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Prevention of industrial eye injuries. Fel'd. i akush. 22 no.12:  
26-28 D '57.  
(EYE--CARE AND HYDIEHE) ( INDUSTRIAL HYGIENE)  
(MIRA 11:2)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Academician Feofil Gavrilovich Ianovskii. Fel'd i akush. 23  
no. 5:46-49 My'58 (MIRA 11:6)  
(IANOVSKII, FEOFIL GAVRILOVICH, 1860-1928)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Fedor Fedorovich Bondarenko. Fel'd. i akush. 23 no. 3:52-53 Mr '58.  
(BONDARENKO, FEDOR FEDOROVICH, 1880) (MIRA 11:4)

SHUMSKIY, K.D., fel'dsher (Kiyev)

"Hygienic aspects of a collective farm village" by P.N.Matveev.

Reviewed by K.D.Shumskii. Fel'd. i akush. 23 no.3:58 Mr '58.

(COLLECTIVE FARMS--HYGIENIC ASPECTS)

(MIRA 11:4)

(MATVEEV, P.N.)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Poisoning from apricot seeds and first aid. Fel'd. i akush.  
23 no.10:41-42 O '58 (MIRA 11:11)  
(APRICOT--TOXICOLOGY)

SHUNSKIY, K.D., fel'daher (Kiyev)

"Paraffin therapy" by M.N. Syroechkowskaia. Reviewed by E.D. Shumskii.  
Fel'd. i akush. 24 no.3:61-62 Mr '59. (MIR 12:4)  
(PARAFFINS--THERAPEUTIC USE)  
(SYROECHKOVSKAIA, M.N.)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Atypical acute appendicitis. Fel'd. i akush. 24 no.9:47 S 159.  
(MIRA 12:12)  
(APPENDICITIS)

MOGILA, F.G., fel'dsher (g. Roven'ki); POPOV, I.V., dezinspektor fel'dsher  
(g. Kyshtym); SHUMSKIY, K.D., fel'dsher (Kiyev)

How we control rodents. Fel'd. i akush. 24 no.11:51-54 N '59.  
(MIRA 13:2)  
(RODENT CONTROL)

SHUMSKIY, K.D., fel'dsher (Kiyev)

"Cancer: causes, prevention, and treatment" by L.F. Larionov.  
Reviewed by K.D. Shumskii. Fel'd. i akush. 25 no.5:63 My '60.  
(MIRA 13:7)

(CANCER)

(LARIONOV, L.F.)

SHUMSKIY, K.D., fel'dsher (Kiyev)

School for female doctors' assistants at the St. Petersburg Foundling Home. Fel'd. i akush. 25 no. 7:32-34 Je '60. (MIRA 13:8)  
(LENINGRAD—NURSES AND NURSING—STUDY AND TEACHING)

SHUMSKIY, K.D., fel'dsher (Kiyev)

Three-day sessions on tuberculosis; history of tuberculosis  
control in the U.S.S.R. Fel'd. i akush. 26 no.10:46-48 O '61.  
(MIRA 14:11)

(TUBERCULOSIS--PREVENTION)